CLAIMS

1. A magnetic head comprising:

first and second pole pieces including first and second pole tips separated by a gap layer; and

the first and second pole pieces each including a body-centered cubic (BCC) nickel-iron alloy layer containing from 64% to 81% iron by weight.

2. The magnetic head of claim 1 wherein at least one of the first and second pole pieces comprises:

a seed layer having a first saturation flux density underlying an electroplated BCC nickel-iron alloy layer having a second saturation flux density no greater than the first saturation flux density.

3. The magnetic head of claim 2 wherein the second saturation flux density is in the range from about 1.9 teslas to about 2.3 teslas.

4. The magnetic head of claim 2 wherein the underlying seed layer comprises a material selected from a group consisting essentially of:

a nickel-iron alloy (NiFe), an iron-nitride-X alloy (FeNX) and a cobalt-iron-X (CoFeX) alloy wherein X comprises a material selected from a group comprising nickel, nitrogen, rhodium, aluminum and tantalum.

5. The magnetic head of claim 1 wherein the coercivity of the first and second pole pieces is less than about 160 amps/meter.

6. A magnetic read/write head comprising:

first and second pole pieces including first and second pole tips separated by a first gap layer;

a magnetic sensor sandwiched between second and third gap layers, the second and third gap layers being sandwiched between first and second shield layers, the second shield layer being generally adjacent to the first pole piece; and

the first and second pole pieces each including a body-centered cubic (BCC) nickel-iron alloy layer containing from 64% to 81% iron by weight.

7. The magnetic read/write head of claim 6 wherein at least one of the first and second pole pieces comprises:

a seed layer having a first saturation flux density underlying an electroplated BCC nickel-iron alloy layer having a second saturation flux density no greater than the first saturation flux density.

8. The magnetic read/write head of claim 7 wherein the second saturation flux density is in the range from about 1.9 teslas to about 2.3 teslas.

9. The magnetic read/write head of claim 7 wherein the underlying seed layer comprises a material selected from a group consisting essentially of:

a nickel-iron alloy (NiFe), an iron-nitride-X alloy (FeNX) and a cobalt-iron-X (CoFeX) alloy wherein X comprises a material selected from a group comprising nickel, nitrogen, rhodium, aluminum and tantalum.

10. The magnetic read/write head of claim 6 further comprising:

a first insulation layer disposed over the first pole piece;

at least one coil layer disposed over the first insulation layer; and

a second insulation layer disposed over the coil layer; wherein

the second pole piece is disposed over the second insulation layer.

11. The magnetic read/write head of claim 6 wherein the coercivity of the first and second pole pieces is less than about 160 amps/meter.

12. A magnetic data storage drive for storing data on a magnetic medium, the drive comprising:

a magnetic head including

first and second pole pieces including first and second pole tips separated by a gap layer, the first and second pole pieces each including a body-centered cubic (BCC) nickel-iron alloy layer containing from 64% to 81% iron by weight;

a housing;

a support mounted in the housing for supporting the magnetic head;

medium moving means mounted in the housing for moving the magnetic medium past the magnetic head in a transducing relationship therewith;

positioning means connected to the support for moving the magnetic head to a plurality of positions with respect to the moving magnetic medium so as to process signals with respect to a plurality of data storage tracks on the magnetic medium; and

control means connected to the magnetic head, the medium moving means and the positioning means for controlling and processing signals with respect to the magnetic head, controlling movement of the magnetic medium and controlling the position of the magnetic head.

13. The magnetic data storage drive of claim 12 wherein at least one of the first and second pole pieces comprises:

a seed layer having a first saturation flux density underlying an electroplated BCC nickel-iron alloy layer having a second saturation flux density no greater than the first saturation flux density.

14. The magnetic data storage drive of claim 13 wherein the second saturation flux density is in the range from about 1.9 teslas to about 2.3 teslas.

15. The magnetic data storage drive of claim 13 wherein the underlying seed layer comprises a material selected from a group consisting essentially of:

a nickel-iron alloy (NiFe), an iron-nitride-X alloy (FeNX) and a cobalt-iron-X (CoFeX) alloy wherein X comprises a material selected from a group comprising nickel, nitrogen, rhodium, aluminum and tantalum.

16. The magnetic data storage drive of claim 13 further comprising:

a first insulation layer disposed over the first pole piece;

at least one coil layer disposed over the first insulation layer; and

a second insulation layer disposed over the coil layer; wherein

the second pole piece is disposed over the second insulation layer.

17. The magnetic data storage drive of claim 12 wherein the magnetic head comprises:

first and second pole pieces including first and second pole tips separated by a first gap layer; and

a magnetic sensor sandwiched between second and third gap layers, the second and third gap layers being sandwiched between first and second shield layers, the second shield layer being generally adjacent to the first pole piece; and

the first and second pole pieces each including a BCC nickel-iron alloy layer containing from 64% to 81% iron by weight.

18. The magnetic data storage drive of claim 12 wherein the nickel-iron alloy in first and second pole pieces has a coercivity of less than about 160 amps/meter.

19. The magnetic data storage drive of claim 12 wherein:
the moving magnetic medium includes a rotating magnetic disk.

20. The magnetic data storage drive of claim 12 wherein:
the moving magnetic medium includes a streaming magnetic tape.

21. A method of fabricating a magnetic write head comprising the steps of:

providing a substrate;

forming a first magnetic pole layer over the substrate by performing the steps of:

forming a first underlying seed layer of a first ferromagnetic (FM) material having a first saturation flux density, and

electroplating the first underlying seed layer with a second FM material having a second saturation flux density no greater than the first saturation flux density;

forming a gap filling layer over the first magnetic pole layer; and

forming a second magnetic pole layer over the gap filling layer by performing the steps of:

forming a second underlying seed layer of a third FM material having a third saturation flux density, and

electroplating the second underlying seed layer with a fourth FM material having a fourth saturation flux density no greater than the third saturation flux density.

22. The method of claim 21 wherein the second and fourth FM materials consist essentially of a nickel-iron alloy containing from 64% to 81% iron by weight.

23. The method of claim 22 wherein the first and second underlying seed layers consist essentially of a nickel-iron alloy containing from 64% to 81% iron by weight.

24. The method of claim 21 wherein the first and second underlying seed layers each comprise a material selected from a group including:

a nickel-iron alloy (NiFe), an iron-nitride-X alloy (FeNX) and a cobalt-iron-X (CoFeX) alloy wherein X comprises a material selected from a group comprising nickel, nitrogen, rhodium, aluminum and tantalum.

25. The method of claim 24 wherein the first and second underlying seed layers each consist substantially of a nickel-iron alloy containing from 64% to 81% iron by weight.

26. The method of claim 21 wherein at least one of the first and second underlying seed layers is formed by a process selected from a group including:

sputtering, ion beam deposition, and vacuum deposition.

27. The method of claim 21 further comprising the step of:

annealing the FM materials in the first and second magnetic pole layers to reduce the coercivity thereof to less than about 160 amps/meter.